SMC Networks

SMCFS5/SMCFS8
EZ-Switch™ 10/100
5/8-Port Unmanaged Switch

USER GUIDE

EZ Switch 10/100 User Guide

From SMC's EZ line of low-cost workgroup LAN solutions

SMC® Networks
38 Tesla
Irvine, CA 92618
Phone: (949) 679-8000

May 2005
Pub #: 150000018000H R01

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* SMC will provide warranty service for one year following discontinuance from the active SMC price list. Under the limited lifetime warranty, internal and external power supplies, fans, and cables are covered by a standard one-year warranty from date of purchase.

SMC Networks, Inc.
38 Tesla
Irvine, CA 92618

COMPLIANCES

FCC - Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

EC Conformance Declaration - Class B

SMC contact for these products in Europe is:

SMC Networks Europe,
Edificio Conata II,
Calle Fructuós Gelabert 6-8, 2º, 4ª,
08970 - Sant Joan Despí ,
Barcelona, Spain.

This information technology equipment complies with the requirements of the Council Directive 89/336/EEC on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility and 73/23/EEC for electrical equipment used within certain voltage limits and the Amendment Directive 93/68/EEC. For the evaluation of the compliance with these Directives, the following standards were applied:

RFI Emission:
- Limit class A according to EN55022:1998, IEC 60601-1-2 (EMC, medical)
- Limit class A for harmonic current emission according to EN61000-3-2/1995

- Limitation of voltage fluctuation and flicker in low-voltage supply system according to EN61000-3-3/1995

Immunity:

- Product family standard according to EN55024:1998
- Electrostatic Discharge according to EN61000-4-2:1995 (ContactDischarge: ±4 kV, Air Discharge: ±8 kV)
- Radio-frequency electromagnetic field according to EN61000-4-3:1996 (80 - 1000 MHz with 1 kHz AM 80% Modulation: 3 V/m)
- Electrical fast transient/burst according to EN61000-4-4:1995 (AC/DC power supply: ±1 kV, Data/Signal lines: ±0.5 kV)
- Surge immunity test according to EN61000-4-5:1995 (AC/DC Line to Line: ±1 kV, AC/DC Line to Earth: ±2 kV)
- Immunity to conducted disturbances, Induced by radio-frequency fields: EN61000-4-6:1996 (0.15 - 80 MHz with 1 kHz AM 80% Modulation: 3 V/m)
- Power frequency magnetic field immunity test according to EN61000-4-8:1993 (1 A/m at frequency 50 Hz)
- Voltage dips, short interruptions and voltage variations immunity test according to EN61000-4-11:1994 (>95% Reduction @10 ms, 30% Reduction @500 ms, >95% Reduction @5000 ms)

LVD:

- EN 60950-1

Industry Canada - Class B

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le ministère des Communications.

Please read the following safety information carefully before installing the Switch:

WARNING: Installation and removal of the unit must be carried out by qualified personnel only.

- This guide is intended for use by network administrators who are responsible for setting up and installing network equipment; consequently it assumes a basic working knowledge of LANs (Local Area Networks).
- The unit must be connected to an earthed (grounded) outlet to comply with international safety standards.
- Do not connect the unit to an A.C. outlet (power supply) without an earth (ground) connection.
- The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN 60320/IEC 320 appliance inlet.
- The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet.
- This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 60950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions.

France and Peru only

This unit cannot be powered from IT† supplies. If your supplies are of IT type, this unit must be powered by 230 V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground).

† Impédance à la terre

Power Cord Set	
U.S.A. and Canada	The cord set must be UL-approved and CSA certified.
	The minimum specifications for the flexible cord are: - No. 18 AWG - not longer than 2 meters, or 16 AWG. - Type SV or SJ - 3-conductor
	The cord set must have a rated current capacity of at least 10 A.
	The attachment plug must be an earth-grounding type with NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
Denmark	The supply plug must comply with Section 107-2-D1, Standard DK2-1a or DK2-5a.
Switzerland	The supply plug must comply with SEV/ASE 1011.
U.K.	The supply plug must comply with BS1363 (3-pin 13 A) and be fitted with a 5 A fuse which complies with BS1362.
	The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3GO.75 (minimum).
Europe	The supply plug must comply with CEE7/7 (“SCHUKO”).
	The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3GO.75 (minimum).
	IEC-320 receptacle.

Veuillez lire à fond l'information de la sécurité suivante avant d'installer le Switch:

AVERTISSEMENT: L' installation et la dépose de ce groupe doivent être confiés à un personnel qualifié.

- Ne branchez pas votre appareil sur une prise secteur (alimentation électrique) lorsqu'il n'y a pas de connexion de mise à la terre (mise à la masse).
- Vous devez raccorder ce groupe à une sortie mise à la terre (mise à la masse) afin de respecter les normes internationales de sécurité.
- Le coupleur d'appareil (le connecteur du groupe et non pas la prise murale) doit respecter une configuration qui permet un branchement sur une entrée d' appareil EN 60320/IEC 320.
- La prise secteur doit se trouver à proximité de l' appareil et son accès doit être facile. Vous ne pouvez mettre l' appareil hors circuit qu' en débranchant son cordon électrique au niveau de cette prise.
- L'appareil fonctionne à une tension extrêmement basse de sécurité qui est conforme à la norme IEC 60950. Ces conditions ne sont maintenues que si l' équipement auquel il est raccordé fonctionne dans les mêmes conditions.

France et Pérou uniquement:
Ce groupe ne peut pas être alimenté par un dispositif à impédance à la terre. Si vos alimentations sont du type impédance à la terre, ce groupe doit être alimenté par une tension de 230 V (2 P+T) par le biais d' un transformateur d' isolement à rapport 1:1, avec un point secondaire de connexion portant l' appellation Neutre et avec raccordement direct à la terre (masse).

Cordon électrique - Il doit être agréé dans le pays d' utilisation	
Etats-Unis et Canada:	Le cordon doit avoir reçu l' homologation des UL et un certificat de la CSA.
	Les spe'cifications minimales pour un cable flexible sont AWG No. 18, ouAWG No. 16 pour un cable de longueur infe'rieure a` 2 me'tres. - type SV ou SJ - 3 conducteurs
	Le cordon doit être en mesure d' acheminer un courant nominal d' au moins 10 A.
	La prise femelle de branchement doit être du type à mise à la terre (mise à la masse) et respecter la configuration NEMA 5-15P (15 A, 125 V) ou NEMA 6-15P (15 A, 250 V).
Danemark:	La prise mâle d' alimentation doit respecter la section 107-2 D1 de la norme DK2 1a ou DK2 5a.
Suisse:	La prise mâle d' alimentation doit respecter la norme SEV/ASE 1011.
Europe	La prise secteur doit être conforme aux normes CEE 7/7 ("SCHUKO") LE cordon secteur doit porter la mention <HAR> ou <BASEC> et doit être de type HO3VVF3GO.75 (minimum).

Bitte unbedingt vor dem Einbauen des RPU die folgenden Sicherheitsanweisungen durchlesen:

WARNUNG: Die Installation und der Ausbau des Geräts darf nur durch Fachpersonal erfolgen.

- Diese Anleitung ist fr die Benutzung durch Netzwerkadministratoren vorgesehen, die fr die Installation und das einstellen von Netzwerkkomponenten verantwortlich sind; sie setzt Erfahrung bei der Arbeit mit LANs (Local Area Networks) voraus.

- Das Gerät sollte nicht an eine ungeerdete Wechselstromsteckdose angeschlossen werden.
- Das Gerät muß an eine geerdete Steckdose angeschlossen werden, welche die internationalen Sicherheitsnormen erfüllt.
- Der Gerätestecker (der Anschluß an das Gerät, nicht der Wandsteckdosenstecker) muß einen gemäß EN 60320/IEC 320 konfigurierten Geräteeingang haben.
- Die Netzsteckdose muß in der Nähe des Geräts und leicht zugänglich sein. Die Stromversorgung des Geräts kann nur durch Herausziehen des Gerätenetzkabels aus der Netzsteckdose unterbrochen werden.
- Der Betrieb dieses Geräts erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemäß IEC 60950. Diese Bedingungen sind nur gegeben, wenn auch die an das Gerät angeschlossenen Geräte unter SELV-Bedingungen betrieben werden

Stromkabel. Dies muss von dem Land, in dem es benutzt wird geprüft werden:	
Schweiz	Dieser Stromstecker muß die SEV/ASE 1011Bestimmungen einhalten.
Europe	Das Netzkabel muß vom Typ HO3VVF3GO.75 (Mindestanforderung) sein und die Aufschrift <HAR> oder <BASEC> tragen. Der Netzstecker muß die Norm CEE 7/7 erfüllen (”SCHUKO”).

Warnings and Cautionary Messages

Warning: This product does not contain any serviceable user parts.

Warning: Installation and removal of the unit must be carried out by qualified personnel only.

Warning: When connecting this device to a power outlet, connect the field ground lead on the tri-pole power plug to a valid earth ground line to prevent electrical hazards.

Warning: This switch uses lasers to transmit signals over fiber optic cable. The lasers are compliant with the requirements of a Class 1 Laser Product and are inherently eye safe in normal operation. However, you should never look directly at a transmit port when it is powered on.

Caution: Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge when handling this equipment.

Caution: Do not plug a phone jack connector in the RJ-45 port. This may damage this device. Les raccordeurs ne sont pas utilisé pour le système téléphonique!

Caution: Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards.

Warnings (in German)

Achtung: Dieses Produkt enthält keine Teile, die eine Wartung vom Benutzer benötigen.

Achtung: Installation und Deinstallation des Gerätes müssen von qualifiziertem Servicepersonal durchgeführt werden.

Achtung: Wenn das Gerät an eine Steckdose angeschlossen wird, muß der Masseanschluß am dreipoligen Netzstecker mit Schutzerde verbunden werden, um elektrische Gefahren zu vermeiden.

Achtung: Dieses Gerät nutzt Laser zur Signalübertragung über Glasfasern. Die Laser entsprechen den Anforderungen an eine Lasereinrichtung der Klasse 1 und sind durch ihre Bauart im normalen Betrieb sicher für die Augen. Trotzdem sollte niemals direkt in den einen Übertragungskanal geblickt werden, wenn er eingeschaltet ist.

Environmental Statement

The manufacturer of this product endeavours to sustain an environmentally-friendly policy throughout the entire production process. This is achieved though the following means:

- Adherence to national legislation and regulations on environmental production standards.
- Conservation of operational resources.
- Waste reduction and safe disposal of all harmful un-recyclable by-products.
- Recycling of all reusable waste content.
- Design of products to maximize recyclables at the end of the product' s life span.
- Continual monitoring of safety standards.

End of Product Life Span

This product is manufactured in such a way as to allow for the recovery and disposal of all included electrical components once the product has reached the end of its life.

Manufacturing Materials

There are no hazardous nor ozone-depleting materials in this product.

Documentation

All printed documentation for this product uses biodegradable paper that originates from sustained and managed forests. The inks used in the printing process are non-toxic.

Purpose

This guide details the hardware features of the switch, including Its physical and performance-related characteristics, and how to install the switch.

Audience

The guide is intended for use by network administrators who are responsible for installing and setting up network equipment; consequently, it assumes a basic working knowledge of LANs (Local Area Networks).

Diese Anleitung ist für die Benutzung durch Netzwerkadministratoren vorgesehen, die für die Installation und das einstellen von Netzwerkkomponenten verantwortlich sind; sie setzt Erfahrung bei der Arbeit mit LANs (Local Area Networks) voraus.

Safety Compliance

Underwriters Laboratories Compliance Statement

Important! Before making connections, make sure you have the correct cord set. Check it (read the label on the cable) against the following:

Operating Voltage	Cord Set Specifications
120 Volts	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Parallel blade, grounding type attachment plug rated 15 A, 125 V
240 Volts (Europe only)	Cord Set with H05VV-F cord having three conductors with minimum diameter of 0.75 mm^2
	IEC-320 receptacle
	Male plug rated 10 A, 250 V

The unit automatically matches the connected input voltage. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the rear panel..

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INTRODUCTION

This manual describes how to install and use SMC' s EZ Switch 10/100 FS5 and FS8. It features 5 or 8 10/100 Mpbs Auto Negotiating switch ports, and provides the flexibility solution for your networking requirements. The EZ Switch 10/100 can be used to connect with PCs, servers, hubs, bridges, other switches and routers. It can also act as a bridge between 10Mbps and 100Mbps networks segments.

This EZ Switch supports 10Mbps and 100Mbps dedicated bandwidth on each port. The Switch is built with plug & play, auto-negotiation on all ports, store-and-forward transmission scheme, IEEE802.3x flow control and back pressure operation for easy installation and smooth transition from legacy 10Mbps to 100Mbps Ethernet networks. All ports support MDI/MDI-X to reduce the possibility of cabling problems.

Description of Hardware

The EZ Switch 10/100, SMCFS5, and SMCFS8, are 5/ 8-port Fast Ethernet switch featuring 5/8 10BASE-T/ 100BASE-TX auto-negotiation ports. These switches provide an ideal bridge between 10Mbps and 100 Mbps Ethernet networks.

Features and Benefits

- IEEE 802.3 and 802.3u compliance ensures compatibility with standards-based hubs, switches and cards from any vendor
- 5/8 dual-speed 10/100 Mbps auto-negotiation ports
- Plug-and-play—nothing to configure
- Auto MDI/MDI-X on all ports—Allow easy cabling.
- "At-a-glance" LEDs for port and system status monitoring

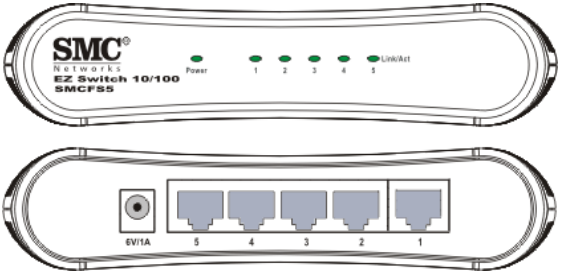
- Jabber lock-up function automatically stops transmission of abnormal frames to prevent network disruption
- Desktop installation—No internal fan is required.

Front Panel LEDs

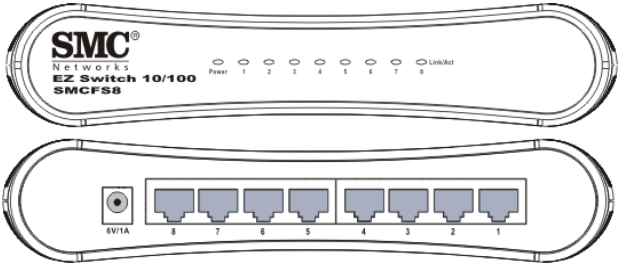
The front panel of the switch provides status LEDs for "at-a-glance" system monitoring. The following table details the functions of the LEDs:

Port and System Status LEDs		
LED	**Condition**	**Status**
Power	Green	The switch is receiving power.
Link/ Activity	Green	Indicates a valid network connection between the port and the attached device.
	Off	Indicates no network connection established between the port and the attached device.
	Flashing Green	Indicates that the port is transmitting or receiving data.

SMCFS5



SMCFS8



Rear Panel

These EZ Switch 10/100 models feature 5/8 10BASE-T/100BASE-TX ports with RJ-45 connectors located on the rear panel of the Switch. Each port contains a built-in wiring crossover (MDI-X) that allows for the use of straight-through twisted-pair cable for connections to devices without built-in crossover ports (i.e., workstations, printers, etc.).

The DC power connector is also located on the rear panel of the switch.

INSTALLING THE SWITCH

The EZ Switch 10/100 can be placed on a desktop or shelf and stacked with other devices using the provided 4 rubber foot pads.

Package Checklist

The EZ Switch 10/100 package includes:

- EZ Switch 10/100 SMCFS5 or SMCFS8
- Appropriate DC power adapter
- Four rubber feet
- SMC Warranty Registration Card
- This User Guide

Please register this product and upgrade the product warranty at www.smc.com.

Selecting a Site

Be sure to follow the site selection guidelines below when choosing a location:

- It should be accessible for installing, cabling and maintaining the switch.
- The temperature and humidity should be within the ranges listed in the specifications.
- The status LEDs should be clearly visible.
- There should be adequate space (approximately two inches) on all sides for proper air flow.
- Make sure twisted-pair cable is always routed away from power lines, fluorescent lighting fixtures and

other sources of electrical interference such as radios, transmitters, etc.

- Make sure that a properly grounded power outlet is located near to the switch.

Instructions

1. **Positioning the Switch:** For desktop or shelf mounting, attach the four adhesive foot pads to the bottom of the switch.

2. **Applying Power:** Plug one end of the power adapter into the socket on the switch's rear panel, and the other end into an appropriate electrical outlet. Check the Power LED to be sure power is on.

Note: It is not necessary to power off the switch before connecting or disconnecting any UTP cables, as these actions will not disrupt the operation of other devices attached to the switch.

3. **Connecting PCs:** Connect each PC to an RJ-45 port on the switch using a straight-through twisted-pair cable segment, maximum 100 meters (328 ft.). The EZ Switch 10/100 will support up to 5 or 8 Connections.

4. **Cascading Switch and Other Network Devices**: Prepare straight-through Category 5 twisted-pair cable with RJ-45 plugs. Make sure the cable does not exceed 100 meters (328 ft). Connect one end of the cable to the switch's port, and connect the other end of the cable to an MDI/MDI-X RJ-45 port on the other device.

TROUBLESHOOTING

1. **Symptom**

   Power LED does not light after powering on the switch.

   Probable Causes

   Power outlet or power cord may be defective.

   Possible Solutions

   - Check for loose connections.
   - Check the power outlet by using it with another device.
   - Replace the power cord.

2. **Symptom Link**

   LED does not light after a connection is made.

   Probable Causes

   Switch port, network card or cable may be defective.

   Possible Solutions

   - Check that the Switch and attached device are both powered on.
   - Be sure the network cable is connected to both devices.
   - Verify that Category 5 cable is used for 100 Mbps connections and that the length of any cable does not exceed 100 meters (328 feet).
   - Check the network card and cable connections for defects.
   - Replace the defective card or cable if necessary.

SPECIFICATIONS

EZ Switch 10/100

Network Interface

RJ-45: 100 ohm, UTP cable
10BASE-T - Categories 3, 4, or 5
100BASE-TX - Category 5

LEDs

Power - one
Link/Activity - one per port

Number of Ports

SMCFS5: 5 10BASE-T/100BASE-TX RJ-45 ports
SMCFS8: 8 10BASE-T/100BASE-TX RJ-45 ports

MAC Address Table

2 K entries

Memory Buffer

SMCFS5: 384 Kbits on-chip frame buffer
SMCFS8: 640 Kbits on-chip frame buffer

Dimensions

SMCFS5: 13.1 x 8.5 x 3.2 cm (5.15 x 3.384 x 1.26 in.)
SMCFS8: 17.6 x 8.5 x 3.2 cm (6.93 x 3.34 x 1.26 in.)

Weight

SMCFS5: 155 g (0.342 lbs)
SMCFS8: 200 g (0.441 lbs)

Power requirements

DC input: 6V,1A

Power Consumption

SMCFS5: 3.52 Watts
SMCFS8: 4.6 Watts

Heat dissipation
SMCFS5: 12.011BTU/hr
SMCFS8: 15.7 BTU/hr

Maximum current
1A @ 6VDC

Filtering/Forwarding/Learning Rates
Full line rate

Temperature
Operating: 32 to 122°F (0 to 40°C)
Storage: -40 to 158°F (-40 to 70°C)

Humidity, non-condensing
10% to 90%

Standards
IEEE 802.3 10BASE-T [1],
IEEE 802.3u 100BASE-TX
IEEE 802.3x flow control support
IEEE 802.3x flow control support

EMC/Safety Compliances
CE Mark Class B

Emissions
FCC Class B, CISPR Class B, EN 61000-3-2/3

Immunity
EN 61000-4-2/3/4/5/6/8/11

Safety
CSA/NRTL (CSA60950-1 & UL60950-1)
TUV/GS (EN60950-1)

Warranty
Limited Lifetime

FOR TECHNICAL SUPPORT, CALL:

From U.S.A. and Canada (24 hours a day, 7 days a week)
(800) SMC-4-YOU; Phn: (949) 679-8000; Fax: (949) 679-1481

From Europe : Contact details can be found on www.smc.com

INTERNET

E-mail address:
techsupport@smc.com

Driver updates:
http://www.smc.com/index.cfm?action=tech_support_drivers_downloads

World Wide Web:
http://www.smc.com/

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France:	33 (0) 1 55 64 04 55	Fax 33 (0) 45 34 68 58
Italy:	39 02 739 12 68	Fax 39 02 739 14 17
Benelux:	31 (0) 654 776 790	Fax 31 (0) 172 242 393
Central Europe:	49 (0) 89 92861-0	Fax 49 (0) 89 92861-230
Nordic and Baltics	46 (0) 566 622 83	Fax 45 (0) 566 622 86
Eastern Europe:	420 266 794 421	Fax 420 266 794 423
Sub- Saharan Africa:	27 012 661 0232	Fax 34 93 471 3374
North West Africa:	34 93 477 4920	Fax 34 93 477 3774
CIS:	34 93 477 4920	Fax 34 93 477 3774
PRC:	86-10-6235-4958	Fax 86-10-6235-4962
Taiwan:	886-2-87978006	Fax 886-2-87976288
Asia Pacific:	(65) 238 6556	Fax (65) 238 6466
Korea:	82-2-553-0860	Fax 82-2-553-7202
Japan:	81-45-224-2332	Fax 81-45-224-2331
Australia:	61-2-8875-7887	Fax 61-2-8875-7777
India:	91-22-8204437	Fax 91-22-8204443

If you are looking for further contact information, please visit www.smc.com.

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SMC Networks
38 Tesla
Irvine, CA 92618
(949) 679-8000